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DOUBLE WALL CONTAINER

Abstract of the Disclosure

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There is disclosed a double wall container or cup comprising inner and outer cup members having side walls with vertical flutes or ribs defining insulating air spaces therebetween. In addition, the flutes or ribs are formed so as to make the cups self-aligning when placed in a stack for storage or dispensing purposes.

The present invention relates to a novel container or cup, and more specifically to a novel double wall insulated cup.

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An important object of the present invention is to provide a novel double wall insulating cup having inner and outer rib or flute means constructed for enhancing the insulating qualities of the cup and also constructed for rendering a plurality of the cups self-aligning when placed in a stack so as to promote uniform nesting in a compact manner.

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A more specific object of the present invention is to provide a novel container or cup of the above described type formed from thin plastic or other suitable material and having generally vertically extending ribs or flutes arranged for defining insulating air spaces between inner and outer walls of the cup and also so that external ribs on one cup are adapted to cooperate with internal ribs on an adjacent cup in a stack so that the cups automatically align with each other for permitting compact nesting.



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Other objects and advantages of the present invention will become apparent from the following description and the accompanying drawings wherein:

FIG. 1 is an elevational view showing the container or cup incorporating features of the present invention;

FIG. 2 is an enlarged fragmentary sectional view taken generally along line 2-2 in FIG. 1 and further showing in broken lines, the manner in which a second cup is adapted to nest within the first cup;

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FIG. 3 is an enlarged fragmentary sectional view taken along line 3-3 in FIG. 1;

FIG. 4 is an enlarged fragmentary sectional view taken along line 4-4 in FIG. 1;

FIG. 5 is a fragmentary sectional view similar to FIG. 2, but shows a modified form of the present invention; and

FIG. 6 is a side elevational view of a container or cup structure embodying another modified form of the present invention.

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Referring now more specifically to the drawings wherein like parts are designated by the same numerals throughout the various figures, a container or cup 10 incorporating features of the present invention is shown in FIG. 1-4 and comprises an inner cup member 12 and an outer cup member 14. These cup members are preferably formed from a suitable material such as plastic in one piece and without seams. For example, a high impact polystyrene plastic material has been found to be especially suitable.

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The cup member 12 has a side wall 16, preferably of inverted generally frusto-conical configuration. A lower margin of the side wall merges with a transverse bottom wall 18. The outer cup member has a similar side wall 20 and a bottom member 22 which is preferably spaced from the inner bottom wall 18 so as to define an insulating air space 24 therebetween. Upper margins 26 and 28 of the inner and outer side walls are rolled together to form an upper end rim 30 which secures the inner and outer cup members together.

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In this embodiment, the cup or container 10 has a portion or area 32 intermediate upper and lower marginal portions of the side walls and providing a primary gripping section which is to be engaged by the hand of a user. In order to insulate the outer surface of the cup from the interior and thereby protect the hand of the user, the outer wall is formed with inwardly projecting flutes 34 separated by ribs 36, which ribs extend substantially axially the length of the portion 32. In addition, the inner cup member wall is formed with flutes 38 separated by ribs 40. In this embodiment the inner and outer flutes and ribs are aligned with each other so as to define insulating air spaces 42 and 44 therebetween. With this construction, the container or cup is well insulated entirely around its periphery and the ribs 36 present broad smooth surfaces which may be comfortably grasped in the hand of a user. In most instances, the user's hand will engage only the ribs 36 since the outer surfaces of the flutes 34 have a circumferential extent similar to the ribs and the flutes are, however, slightly wider than the ribs to permit nesting of stacked cups as described below and shown in broken lines in FIG. 2.

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In this embodiment, the inner and outer walls are formed with annular wall sections 43 and 45 at the lower margin of the gripping portion and merging with inwardly projecting shoulders or annular shelf sections 46 and 48. These sections respectively merge with inner and outer lower end wall sections 50 and 52. In accordance with a feature of the present invention, the outer lower end wall section 52 is formed with flutes 54 and ribs 56 having a substantially V-shaped configuration as shown best in FIG. 4 and the inner lower end wall section is formed with somewhat similar flutes and ribs 58 and 60. The ribs and flutes nest within each other as shown in FIG. 4, but it is to be noted that the outer ribs 56 have a sharper V-shaped configuration than the inner ribs 60. In other words, the included angle between the sides of the ribs 56 is less than the included angle between the sides of the ribs 60. Thus, the ribs 56 have crest portions which project substantially radially outwardly from crest portions of the ribs 60 so as to define insulating air spaces 62 therebetween. Engagement between ribs 56 and 60 also serves to orient the inner and outer members relative to each other so as to obtain the desired relationship between ribs 36 and 40. Furthermore, when a plurality of the cups are stacked, the crests of the outer ribs 56 of one cup are adapted to project into and nest within the V-shaped grooves at the inner sides of the ribs 60 of an immediately adjacent cup as shown in broken lines in FIG. 4. Thus, a plurality of cups may be stacked or nested together in a relatively compact manner.

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As previously indicated, the V-shaped configuration of the outer ribs 56 is relatively sharp. This coupled with the relatively wide grooves provided by the flatter inner ribs 60 facilitates entry

1 of the outer ribs into the inner ribs during stacking or, in other words, aids in rendering the cups self-aligning. In addition, the construction of the inner ribs 60 is such that the grooves provided thereby have relatively wide and flaring mouths 64 as shown in FIG. 3. These mouths are in alignment with the grooves provided by the ribs 40 in the gripping portion of the container. Therefore when one cup is inserted within another during a stacking operation, preliminary alignment between the cups may first be obtained by engagement of at least a portion of the ribs 56 within the grooves defined by the ribs 40 and final alignment will be obtained as these ribs pass downwardly through the mouths 64 and enter into the grooves defined by the ribs 60.

10 Referring now to FIG. 5, there is shown a slightly modified form of the present invention. The structure of this embodiment is substantially the same as that described above as indicated by the application of identical reference numerals with the suffix a added to corresponding elements except that the outer and inner ribs 36a and 40a are circumferentially offset from each other. In other words, in the first embodiment, the ribs 36 and 40 are in alignment with each other with the generally radially extending wall portions of these ribs in substantial alignment. However, in the embodiment shown in FIG. 5, the inner ribs 40a are in alignment with and abut the surfaces of the flutes 34a. This arrangement increases the width of the insulating air pockets 44a.

20 FIG. 6 shows a further modification of the present invention wherein elements corresponding to those described above are indicated by the same reference numerals with the suffix b added.

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In this embodiment the V-shaped outer and inner ribs 56b and 60b extend all the way from the bottom of the cup upwardly across the gripping portion to points adjacent the upper margin of the cup. It is understood that the ribs 56b and 60b have the same cross-sectional configuration and interfit with each other in the same manner as the corresponding ribs shown in FIG. 4.

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While preferred embodiments of the present invention have been shown and described herein, it is obvious that many structural details may be changed without departing from the spirit and scope of the appended claims.

The embodiments of the invention in which an exclusive property or privilege is claimed are defined as follows:

1. A double wall container including an inner member and an outer member, said members respectively including inner and outer downwardly converging peripheral side walls and inner and outer bottom walls, said inner and outer side walls respectively including
5 a plurality of circumferentially spaced axially extending and radially outwardly projecting ribs having outwardly facing crests and defining radially inwardly facing grooves, said outer sidewall rib crests being spaced from the inner side wall and defining insulating air chambers, said outwardly facing crests of the outer
10 sidewall ribs being narrower than the inwardly facing grooves of said inner sidewall ribs for enabling a plurality of said containers to be stacked together with said outer sidewall ribs of one container nesting within the inner sidewall ribs of a like container.

2. A container, as defined in Claim 1, wherein said outer sidewall ribs have a generally V-shaped transverse cross-sectional configuration.

3. A container, as defined in Claim 2, wherein said inner sidewall ribs have a V-shaped transverse cross-sectional configuration with an included angle greater than the included angle of the V-shaped cross-sectional configuration of the outer
5 sidewall ribs, the crests of the inner sidewall ribs projecting into said outer sidewall ribs.

4. A container, as defined in Claim 3, wherein said inner member comprises an annular wall section around upper ends of its ribs and the grooves defined thereby, said inner sidewall ribs including diverging upper end portions merging with said wall

5 section and providing said last mentioned grooves with flaring mouths at upper ends thereof for facilitating alignment of a plurality of like containers during stacking of such containers.

5. A container, as defined in Claim 3, wherein said ribs traverse lower end portions of said inner and outer side walls.

6. A container, as defined in Claim 5, wherein said ribs extend from said lower end portions upwardly substantially to upper margins of said inner and outer side walls.

7. A container, as defined in Claim 1, wherein said crests of said ribs have a width circumferentially of the container substantially greater than the radial extent of said ribs, said ribs being spaced from each other circumferentially of the container
5 by axially extending wall sections having a circumferential extent similar to the circumferential extent of the crests.

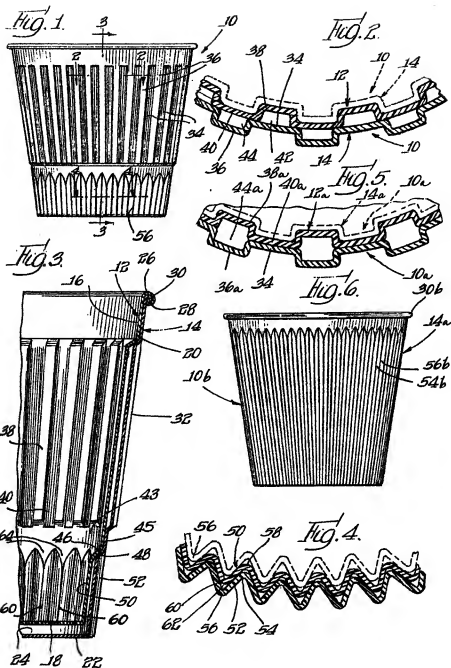
8. A container, as defined in Claim 7, wherein the circumferential extent of the inner sidewall rib crests is greater than the circumferential extent of the outer sidewall rib crests, said inner sidewall ribs being disposed in substantial radial
5 alignment with said outer sidewall ribs.

9. A container, as defined in Claim 7, wherein said inner rib crests are wider than said outer sidewall rib crests, said inner sidewall rib crests being disposed in radial alignment with and abutting said axially extending sections circumferentially spacing
5 said outer sidewall ribs.

10. A container, as defined in Claim 7, wherein said inner and outer sidewall ribs traverse intermediate gripping portions of said side walls and terminate at upper margins of inner and outer

lower end portions of said side walls, said inner and outer lower
5 end portions respectively including a plurality of additional
circumferentially spaced axially extending and radially outwardly
projecting ribs having radially outwardly facing crests and defining
inwardly facing grooves, said additional ribs having substantially
V-shaped cross-sectional configurations for maintaining alignment of
10 said inner and outer members during assembly thereof and for promoting
self-alignment of a plurality of such containers when the containers
are stacked together.





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